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EDITORIAL

THE A.O.C.P. CLASSES.

This very interesting activity of the W.I.A. has now become an established fact, and is doing good work, not only in the interests of students, but with regard to the financial position of the division. It is no good "beating about the bush": it must be admitted that our present premises are largely maintained by these classes, and there is no reason why this happy state of affairs should not continue indefinitely, providing our members give us their assistance. Up to the present time the whole of the responsibility for the success of them has fallen upon the shoulders of the Council. Many active members have 2nd ops whose object is the A.O.C.P., others know of possible students who are in need of assistance in this particular manner. Here, then, is ample scope to do something which will bear good fruit. By recommending the Institute classes to prospective students you will be helping them and yourselves. The present class is approaching its final examination, and it is hoped to commence the winter session early in April. An inclusive fee of £5 5s. is charged, which covers everything, tuition, books, membership of the W.I.A. for the current year, and the magazine. The full course occupies roughly six months, and the percentage of passes is high. Classes are held on Mondays and Thursdays, from 7.45 p.m. until 10 p.m., and full particulars may be obtained from the Class Manager (VK3TH), 104 Bambra-road, Caulfield, S.E.8. Any member who has the ability to act as instructor in either code or theory is invited to offer his services in that capacity, and a reasonable fee is paid for such services. The class is limited to 30 students, and every effort is made to give students individual attention. An idea seems to be abroad that we only require people with some knowledge in the classes; this is quite erroneous, as the large majority who come to us have practically no idea of any phase of the subject. Many applications are received from country enthusiasts for correspondence courses, but at present we are not in a position to undertake this type of instruction.

IMPORTANT NOTICE.

All VK amateurs who accept third-party messages from overseas stations are placing themselves in a very difficult situation. Quite a lot of chaps seem to think it better to take this risk than explain to the other fellow that our regulations prohibit this practice.

Also we are not alone in our use of the air—others hear our signals, and these breaches have been noticed too frequently lately to be overlooked by the powers that be.

We received a letter, unsigned, regarding our recent Editorial on Experimental Sections. It is noted that someone reads the Editorial, so we are encouraged to hope that some good may come out of it.

It is necessary to get members interested by preliminary publicity first, before the Council can do much.

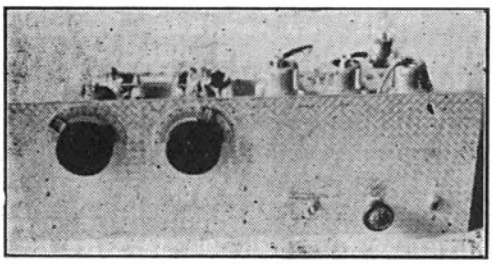
Most people seem to think that the Council can easily arrange such necessary things as an Experimental Section, but this is not so. Members must first show an interest before much can be done.

Any others who are interested, together with our anonymous friend, please send in their names and addresses, and we may be able to get a start.

An Experimental 56 and 112 MC Superhet Receiver

(By VK3ML, Technical Editor.)

It is generally accepted that the most efficient receiver for the ultra high frequencies must be of the frequency-convertor-amplifier type; in other words, the superhet or superinfragen. Amplification at high frequencies with stability and sensitivity is not too easy to obtain, and tube efficiencies fall off very rapidly. Then, again, the super-regenerative receiver, whilst having enormous gain and its uses, falls down when it comes to CW reception, not forgetting the well-experienced QRM it can cause to a neighbouring

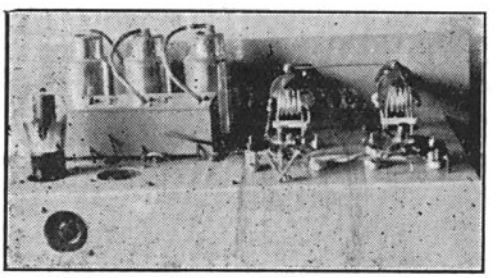


receiver. From my own personal experience, super-regens are hard to beat for the over-modulated phone racketeers, for their weight, and for their simple construction. However, we must progress and see if it is possible to conquer the so far untamed U.H.Fs. with improved gear.

The popular superhet design in Australia seems to employ resistance coupled I.F.'s. The disadvantages of this type are very low amplification, QRM from a nearby B.C. station through rectification in the I.F. stages, and susceptibility to auto ignition interference because of poor selectivity. We have to turn to the English factories to overcome the troubles, and there we find what must be looked upon as being an advancement in transformer design for U.H.F superhets. The receiver described was built around the "Eddystone" three-stage transformer recently market in Australia. Each of the primaries and secondaries are shunted by a resistance which sufficiently dampen the tuning to enable one to follow slight frequency modulation. The gain is surprising, and each unit being completely shielded prevents any interaction and feedback that one may perhaps expect.

With this unit as a basis the following layout was decided upon:—1st detector and H.F. oscillator, 955's; 1st and 2nd I.F.'s, 6D6's; 2nd detector and first audio, 6B7S, which provides automatic and manual gain control; and lastly, a 41 audio. One eye was kept on the total plate consumption and the other on the filament wattage, as the one receiver was to be operated at home as well as out on field days. A rather large chassis was bent so that there would be ample room for expansion and alterations at any time.

The general layout can be seen from the photos in Figs. 2, 3 and 4.



Aluminium panel and chassis measurements are—Panel, 16" x 9"; chassis, 14" x 10" x 3" deep. The metal being 16 gauge. In Fig. 3 the tube line up from left to right is—955 Osc, 955 1st Det, 6D6, 6D6, I.Fs, 6B7S, 2nd Det. and 41 audio. The blank socket will take a B.F.O. at a later date. Behind each of the acorn tubes are the 20 mmfd tuning condensers and plug in silver-plated coils. The small box-like arrangement in front of the IF tubes is the Eddystone IF transformer, which measures 6¼" x 2¼" by 1¾". In Fig. 4 it will be seen that the low-frequency stages are bunched up together as much as possible in order to leave as much room for experimen-

tal work around the U.H.F. end of the chassis.

So much for the general design; now for reasons why. Acorn tubes were used because, although they are no better than ordinary tubes above 5 metres, they have a marked effect on the lower waves. Oscillators are more stable and easier to get going, whilst 1st detectors function better because of the lower socket and other losses. Electron coupling is the order of the day, and appears to provide a stable beat for the detector. Anode bend detection was chosen for the detector for no other reason than its ability to handle a fat signal. Later, regeneration will be wired in this stage. 6D6's are good IF tubes, whilst the tuo-diode-penthode 6B7S is an excellent 2nd detector and A.V.C. tube. All due precautionary measures were taken to keep the R.F. from wandering off course by adequate filtering with chokes and resistors. Inductive coupling was installed between the 1st detector and HF oscillator because it was found to be the most effective method of injecting RF voltage into the detector. It will be seen from Fig. 1 that the "hot" grid ends are placed towards one another and with a spacing of about 3¼" between them. This value is best decided upon by varying the distance between the coils for optimum results. The performance of the whole set depends on this adjustment, and it is recommended that the oscillator be not tied down until experiments have been completed. The aerial coupling coil is placed between L1 and L3.

An explanation of the function of the 2nd detector will just about complete this description, as the remainder of the super-het is the same in operation as any other super. The two transformer returns are coupled together through resistor R18 to the A.V.C. diode plate through R5. R5, in combination with C19 and C18, sets the time constant to the A.V.C. circuit. Larger values of R5, C18, and C19 will increase the time constant so that the A.V.C. does not operate as rapidly. R14 is the diode load resistor; its value is not critical as long as it is at least a few megohms. The A.V.C. diode plate gets its carrier voltage from the audio diode

(Continued on cover 3.)

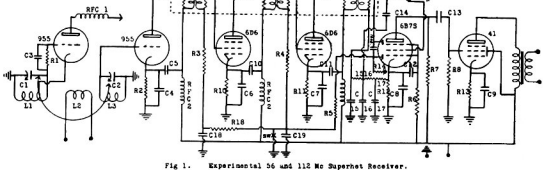


Fig 1. Experimental 56 and 112 Mc Superhet Receiver.

L1 (56 mc) 5 Turns ¾" diam.
L2 (56 mc) 3 Turns ¾" diam.
L3 (56 mc) 4 Turns ¾" diam.
RFC 1. 5.6 microhenries.
RFC 2. 17.9 milliheries.
C1 6.75-22.5 mmfd.
C2 6.75-22.5 mmfd.
C3 100 mmfd. mica.
C4 0.02 mfd.
C5 0.1 mfd.
C6 0.1 mfd.
C7 0.1 mfd.
C8 5 mfd. electrolytic.
C9 25 mfd. do.
C10 0.1 mfd.
C11 0.1 mfd.
C12 0.1 mfd.
C13 0.5 mfd.
C14 0.1 mfd. paper.
C15 100 mmfd. mica.
C16 100 mmfd. mica.
C17 0.01 mfd. paper
C18 0.01 mfd. paper.
C19 0.01 mfd. paper.
R1 50,000 ohm 1 watt
R2 50,000 ohm 1 watt.
R3 0.25 megohm.
R4 0.25 megohm.
R5 1 megohm.
R6 1 megohm.
R7 0.25 megohm.
R8 0.5 megohm.
R9 1 to 3 megohms.
R10 300 ohms.
R11 300 ohms.
R12 3500 ohms.
R13 600 ohms.
R14 2 megohms.
R15 50 000 ohms.
R16 250,000 ohms.
R17 50,000 ohms.
R18 10,000 ohms.
T1. Special Eddystone 2000 Kcs 3-stage shielded I.F. Transformer, with damp.ng resistors.

Multiband Antenna for High Frequencies

With Acknowledgments to the Collins Radio Co., U.S.A.

Section 1. Practical Data:

A high frequency antenna and associated transmission line, capable of efficient operation over a wide range of frequencies, has been urgently needed. Amateurs are rarely fortunate enough to have sufficient space for erecting more than one antenna, and commercial high-frequency stations are also frequently located in restricted quarters where separate antennas for each channel cannot be used.

The ordinary high-frequency antenna consists of a doublet operated at its fundamental (the length equal to one-half wave length) or at a harmonic. Such antennas are popularly classified by the type of feeder system employed such as "Center Fed," "End Fed or Zeppelin," "Singlewire Hertz," "Matched Impedance with Y connected feeders," etc. Only by connecting the feeders into the center of the doublet can the antenna and feeder system be kept electrically symmetrical as the frequency is varied. Unfortunately, the impedance at the center of the antenna changes with the frequency, and any ordinary arrangement for matching the transmission impedance to the antenna impedance can be effective at only one frequency. Furthermore, the effective electrical height (which may be different from the physical height above ground) has a marked effect upon the antenna resistance, and an impedance matching system which is effective at only one value of antenna impedance cannot be counted on to give correct energy transfer to the antenna unless it is adjusted for each particular installation.

The problem, then, resolves itself into the designing of a transmission line which operates efficiently over a wide range of terminating or antenna impedances. The usual two-wire line, constructed of two No. 12 wires spaced about six inches and having a characteristic impedance of about 600 ohms, is not satisfatory for this purpose. For exampe, such a line one-quarter wave length long connected to the center of a one-half wave length doublet will not be terminated in its characteristic impedance of 600 ohms, but in the antenna resistance of about 75 ohms, and due to the properties of such a line the input impedance at the transmitter end will be about 5,000 ohms (mathematical study will be reserved for the second section of this article and is not essential for a practical understanding of the system). An input impedance as high as 5,000 ohms is undesirable because it is difficult to transfer power to it, because a slight capacity unbalance will cause serious radiation from the line, and because line losses are high, due to poor power factor, i.e., pronounced standing waves.

In practice the impedance at the center of a horizontal antenna varies between about 75 ohms and 1200 ohms as the frequency is varied. The lower values occur when the antenna length is one-half wave length, three one-half wave lengths, five one-half wave lengths, etc., and the impedance is highest for frequencies making the antenna length one or more full wave lengths long. If a transmission line with a characteristic impedance of 300 ohms (the geometric mean between 75 and 1200) is used, the standing waves will be a minimum at all frequencies, and the input impedance will remain at all times a manageable value not exceeding 1200 ohms. A 300 ohm line can be constructed of two ¼ inch tubes spaced 1½ inches by means of ceramic blocks at intervals of about 20 inches. The blocks can be located by crimping the tube slightly on either side of the block. A 50 foot copper line of this type weighs 10.9 pounds and is not difficult to support from the center of the antenna. If necessary, aluminium instead of copper tubing may be used to reduce the load on the antenna supports when the vertical part of the transmission line is greater than 50 feet. A line so constructed has surprisingly low loss.

The following excerpts indicate the minimum efficiency obtained for a line 100 feet long terminated in either 70 or 1200 ohms.

Frequency	Efficiency
3000 kc.	98.5%
7000 kc.	98 %
14000 kc.	97 %

By way of comparison it is interesting to note that a 100 foot twisted pair transmission line of popular make has the following efficiency when terminated in its characteristic impedance:

Frequency	Efficiency
3000 kc.	95%
7000 kc.	84%
14000 kc.	68%

Of course, an antenna with twisted pair feeders can only be used on one band.

cuit of the transmitter by a simple pickup coil. An impedance matching network need not be used provided the number of turns in the pickup coil is continuously adjustable.

In cases when it is not convenient to use a transmission line as long as is shown in Table I it is, of course, entirely practicable to reduce the length of the line to a convenient value and build out the equivalent electrical length by inserting an impedance matching network between the transmitter and the line. When such a network is used the line can be made any length, and then the only important dimension is the antenna itself. The only precaution which must be observed is that the transmission line should not be $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$,

TABLE I

MODEL	A	B	C	D	E	F	G
Antenna Length—Feet	136	136	275.5	250	67	67	103
Feeder Length—Feet	66	115	99	122	65	98	82.5
Frequency Range	3.7– 4.0 7.0– 7.3 14.0–14.4	3.7– 4.0 14.0–14.4	1.7– 2.0 3.7– 4.0 7.0– 7.3 14.0–14.4	1.7–2.0 3.7–4.0	7.0– 7.3 14.0–14.4 28.0–29.0	7.0– 7.3 14.0–14.4 28.0–29.0	3.7– 4.0 7.0– 7.3 14.0–14.4
M.C.							
Nominal Input Impedance	1200 All Bands	75 All Bands	1200 160–80–20 m, 75 40 m	1200 All Bands	75 40 m 1200 20 m 10 m	1200 All Bands	1200 All Bands

A 600 ohm two-wire line 100 feet long terminated in 70 ohms has the following efficiency when properly balanced:

Frequency	Efficiency
3000 kc.	94%
7000 kc.	92%
14000 kc.	89%

In practice, slight unbalances in a 600 ohm line materially reduce the efficiency, whereas the 300 ohm line is not so susceptible to loss in efficiency.

In view of the above information it is seen that an antenna can be made to work very efficiently over a wide frequency range and with any antenna impedance between 75 and 1200 ohms by the simple expedient of using a specially constructed transmission line. Several different models of such an antenna system are possible and Table I shows representative combinations designed for use on amateur bands. In each of the arrangements shown in Table I the length of the multiband transmission line is so chosen that the reactance at the transmitter end is negligible and the line can be coupled to the output tank circ-

etc. wave length long at any of the operating frequencies. If the line happens to be cut to a length equivalent to an odd number of $\frac{1}{4}$ wave lengths, trouble may be encountered due to the network transmitting not only the fundamental frequency but also harmonic frequencies. This difficulty can be overcome by proper adjustment of the impedance matching network, but a discussion of this subject will be reserved for a later article In general it is better to avoid these specific lengths.

Table I can be used directly for designing multiband antennas for amateur use. It will be noticed that the antenna lengths shown are an even number of one-quarter wave lengths long at the lowest and highest frequencies. In the case of antennas for 14,000 kc. and 4,000 kc. operation the frequencies are not harmonically related, but the lengths, are chosen for the highest frequency, and they are also approximately right for the lower frequency where small variations in length do not represent very large percentages of a wave length.

In designing similar systems for other groups of frequencies, the antenna length should be (k-.05) 492,000/f feet where f is the frequency in kilocycles and k is the number of half-wave lengths. Thus, for two or more frequencies integral values of k should be chosen to give approximately the same length and the exact length should be that for the highest frequency.

For example, consider model A antenna. At 14,300 kc. and k=4 or a two wave length antenna the length is 136 feet. This length is also correct for f=7,050 and k=2 or f=3440 and k=1. The frequency range of the amateur bands may be tolerated by this length even though the transmission line be terminated in an antenna impedance not a pure resistance.

The feeder length should be determined by the relation 234,000 m/f feet where f is the frequency in kilocycles and m is the number of quarter-wave lengths. That is, the 66 ft. feeder of model A antenna is one wave length at 14,200 kc., a half-wave length at 7,100 kc., and one-quarter wave length at 3,550 kc.

A slight variation from the above procedure is indicated in Model G. In this antenna the length of 103 feet is 1½ wave lengths at 14,100 kc. and approximately ⅝ and ⅝ wave lengths on the 40 and 80 meter bands. The feeder length of 82.5 feet is 1¼ wave lengths at 14,200 kc. and approximately ⅝ and 5/16 wave lengths at the 40 and 80 meter bands. That is, on 40 and 80 meters the transmission line is terminated in an impedance largely reactive but is of such length that the impedance at the input to the transmission line is approximately a pure resistance. The loss in the transmission line is slightly larger under this condition, but this antenna may be used successfully where space is a factor.

Many amateurs are using so-called Zeppelin antennas rather than antennas fed at the center because their transmitters happen to be located nearer the end than the center of the antenna and the transmission line is shorter if it is connected to the end of the doublet. The Zeppelin antenna is an inherently unbalanced system (Zeppelin feeders balanced for equal currents are not balanced for equalphase and viceversa) and a considerable portion of

(Continued on Page 17.)

VK-ZL International DX Contest

(By G. B. Raglees, VK5GR Contest Manager.)

The 1936 contest which was conducted by the South Australian Division of the Wireless Institute, in conjunction with the N2ART, proved an outstanding success.

The large number of competitors, both VK-ZL and overseas, was particularly pleasing and gratifying to the organisers. The Committee would like to thank all those who took part, and desire to congratulate those who made top scores in their partilar section.

The rules, which provided a sliding scale of scoring from 12 to 1, encouraged competitors to work the hard places, instead of making numerous contacts with easy points. The rule of permitting only one contact on each band (except 28 m.c.) with the same station was much appreciated by low-powered stations, where weaker signals were eagerly sought after.

Once again VK3EG won the Australian section, this time rather easily, by working 70 countries for 235,970 points. Other high scorers were VK2AE, with 55 countries; VK4BB, 54 countries; VK2HF and VK4YL, 47 countries; and VK3MR, 45 countries.

In New Zealand ZL1DV worked 44 countries for 95,964 points; ZL1FT being the only other competitor to reach 40 countries.

The operators of VK2HV, VK3HK and VK2YC, by working 27, 26 and 25 countries, respectively, in the handicap section, deserve to be congratulated. On the basis of the power used, their work will bear more than comparison with many of the high-powered stations. The Committee regret that the receiving section did not receive more support in VK-ZL.

The best scores among the overseas stations were made by U.S.A. entrants, which was to be expected, considering what an easy target the "States" are for VK-ZL. The leading stations were W5EHM, 8,850; W6HX, 8,460; W9TB, 8,390; W6FZL, 8,300; W9AEH, 7,550; W3BES, 7,290; and G6CF, 6,970.

It was noticed that North American stations had little trouble in working VK2-3-4 and some 26 stations on 28 m.c. each week-end.

Extracts from Logs.

VK6FL says QRM so bad that he is going to have a new receiver for the 1937 contest.

VK3BQ used only 28 m.c., and worked 11 countries.

VK7JB used fone for HI5X, as did VK3MR and several others.

VK2EG says he blew a lot of filter and lost much sleep and religion during the contest.

VK5FM did good work again, but found that conditions on 28 m.c. did not compare with the Eastern States.

VK3GP was on for 55 hours out of a possible 130 for the whole contest.

VK4YL was thrilled to work G2YL. She wishes to point out that she did not cut out her filter, and can't understand why the note detiorated, but her log shows T8-9 all the time. Looks a case of some untruthful reports being given.

G5GQ worked a few stations the first week-end, but could not forward a report, as he had to leave for U.S.A.

G2ZQ, who worked during part of the contest, also could not find time to send a report. His score exceeded 6000 points.

G6CJ sent a very complete description of all his station and a resume of conditions during the contest. He heard the following on 28 m.c.:—VK2AE, 2JT, 3CP, 3HL, 3YP, 4AP, ZL3DJ and ZL1GX. He found 28 m.c. best from 0900-1200 gmt, and made 10 contacts.

G2TH, G6IJ, and G5VQ had 10 watts, and G6ZO had 11.

G5YG was operated by G5ZX. Like 6CJ, he sent a very complete report on the contest. He worked 67.5% of the stations heard.

Z5IH had all his 27 contacts on 28 m.c., and ZT6Y had four.

OE1ER worked VK4BB; E1SF worked VK6AA; SM6WL worked VK2LZ; and OK2RM worked VK4EI as their only contacts on 28 m.c.

G2LB enjoyed the contest, and says a "Million Thanks"—a view which was expressed by many other competitors.

LA2Q sent his report in twice; perhaps to make sure that we would receive a copy.

Many overseas stations commented on the good operating of VK2HF, 3EG, 3MR and 4BB.

VQ8AA used 18 watts for his 21 contacts on 14 m.c.

ZS5U used 7 m.c., and got very good results.

VQ4SNB reports very poor conditions, but most other competitors said that conditions were good, particularly during the first three week-ends.

VU2LJ had no intention of entering, but as VK-ZL's were calling him so hotly, he was forced into it. He says that many of the ZL/UK notes were poor, a complaint lodged by other overseas competitors.

K5AY used 28 m.c. a lot; K5AC called VK4UR five times without luck.

K6CGK was on for only 15 hours. A popular 28 m.c. station was XE1AY, who had 51 contacts on that band.

HB9AT made a few nice comments, and says he admired G2YL and others, who left their warm beds to boost their scores.

VE3AU was another to send a detailed record of his work. After waiting six months for his first VK7, he worked two in ten minutes, but could hear no ZL3's. He says that ZL/VK stations were only audible for two hours each a.m., when it was often only 10 deg. above zero.

OK2OP says VK2LZ, 3LP, 3BQ, and 4AP were FB on 28 m.c., and he also heard VK2GU, 2O5, 3CP, 3KX, 3XP, 3YP, 4EI, 4BB, 5KO, 5LJ, 6AA, 6CA, 6FO, and ZL1BV, 1DV, 1GX, 2PC, on the 28 m.c. band.

The Secretary of the D5AD, D4BUF, again sent a detailed report setting out the activity in that country. He says that VK2LZ was outstanding on 28 m.c. German stations active on this band were D4SNP, D4XQF and D4BUF.

W3BES worked 47 and W9AEH 41 ZL/VK stations during the first week-end, which must be nearly a record.

W9VVR says five week-ends gave a chance of one good week-end!

W8BXC says VK2HF, 3MR, 6FO best VK's, and W8FGA says VK2NY, 6FO, and 7JB were the best with him.

W1SZ was only on during the two last week-ends, but scored 5,700.

W5EHM, the best overseas competitor, used 7 m.c. 1 kw., with Johnson Q antenna; 14 m.c. 1K.W. with V beam and 28 m.c. 800 watts with V beam. He and W6FZL made nearly 70 contacts on 28 m.c.

W6HX had 1 kw., and made 51 contacts on 28 m.c.

W2HHF noticed a large number of VK/ZL stations coming the long way.

W1JPE had several different antenna systems for various times of operation.

Station Reports.

J2IS (November 1).—Recently every morning W's come through very nicely; above all W6 and W9 phones very good indeed. VK's and ZL's all day long OK. LU6AX, LU9AX, and LU9BV heard very often during October. In evening OK, PA, D, F, HAF, HB, G, and ZS come in here rarely, but OH7NF very often. On October 19th heard KA1XR sending V's on about 7 metres at 17.00 J.c.t.

ON4NC.—Reported that W signals from all districts started to come in on September 15th, sometimes with very good volume. South Americans and ZS1H were heard, but no VK or ZL. J's came in on the 20th. Using grid modulated phone, 40 watts to a pair of 46's.

VE3ER.—Worked 31 countries on "ten." Found a poor dx period in the middle of October, but conditions good to work W's in mid-west and west. Need Asia for W.A.C.

W8ZY.—Using 250 watts to a T-55 final, with a 66-foot vertical antenna. Have been working considerable dx on 28 m.c. recently. Heard several J's on the week-end of November 7-8, when conditions were quite satisfactory.

W9JGS.—Plenty doing on 10 metres. Heard VK3YP in early morning on November 2nd. Heard SU1SG for first time. SM stations are loudest from Europe.

W6JNL.—Starting November 1st, band was hotter than 14 m.c. as

far as hearing all continents consistently was concerned. Europeans S6 to S7 in mornings, with PA/AZ most consistent. ZS1H is only African coming through, but is heard daily. J2LU is in during early afternoons, and lasts till evening. Late afternoons LU9AX is S7, as most consistent from South America. Rig here RK20, with 85 watts input, working into 133 foot and fed antenna.

W6ITH.—On phone exclusively; working VK2GU daily for an hour, giving him the Simpson news. VK2GU has moved to 28,120 kc. to avoid the c.w. QRM on low frequency end of band. Have planned diamond antenna for Europe.

W9BPU.—Worked all continents this autumn, using 6L6-804-150T, with 450 watts input. The morning of November 8th was particularly good for Europe and Africa; heard U1CR and U1AD in Russia, YT7MT in Yugoslavia, and TF3R in Iceland. Worked 30 countries on "10."

W5FJ.—Band opens here about 8 a.m., usually going dead about 6.30 p.m. Europeans come in until 1.30 or 2 p.m., then Aussies start about 4.30 p.m. October 31st was almost completely dead. Had a nice contact with mobile W6CNE, who was on an RKO set filming a picture.

AUSTRALIAN OPEN SECTION.

VK3EG	235970	VK4DO	16420
VK2AE	138940	VK2YL	16023
VK4BB	127818	VK2RB	13471
VK4YL	105750	VK4LE	13040
VK3MR	104670	VK5LD	12581
VK2HF	93060	VK4UR	10800
VK3KX	83353	VK3BQ	6440
VK5FM	71410	VK4CG	6304
VK2DA	50470	VK7LZ	6204
VK3GQ	44736	VK4EI	5750
VK6FO	44400	VK3IW	4519
VK2XT	40703	VK5CM	4459
VK2NY	40524	VK5RD	3224
VK7JB	39092	VK5ZX	2920
VK3GP	35815	VK6SA	2416
VK5HW	32400	VK2ABC	1785
VK2TI	32172	VK3HG	1746
VK7AB	29302	VK3JJ	1260
VK5WJ	25208	VK3YP	1056
VK6MW	24732	VK7CL	990
VK2EG	22132	VK5RT	916
VK2QE	21525	VK6JE	912
VK4HR	21120	VK5LL	788
VK6FL	20372	VK4JB	276
VK3UW	19470	VK3WD	276
VK3CP	19056	VK2TJ	68

VK HANDICAP SECTION.

	Power	Total Points	Points Per Watt
VK2HV ..	20	33372	1638.4
VK3HK ..	25	39520	1580.8
VK2YC ..	20	20300	1015.
VK3TU ..	25	4875	195.
VK3RJ ..	19	478	25.1

VK RECEIVING SECTION.

VK3-ERS 109134 C. H. Miller 24340

NEW ZEALAND.

ZL1DV	95964	ZL3AB	15523
ZL1AA	69030	ZL3AJ	14200
ZL1FT	51020	ZL3GR	13904
ZL4BQ	47589	ZL2BP	10556
ZL4CK	38950	ZL3KG	9600
ZL1GX	37310	ZL1BC	9420
ZL1LM	35802	ZL1CV	8196
ZL2DS	31248	ZL2OD	5109
ZL2OQ	26472	ZL3JX	4676
ZL2QA	23940	ZL2CP	2947
ZL1FE	19075	ZL3CS	95

ZL RECEIVING SECTION.

ZL166 48600

CANADA.

VE1IW	4350	VE5PW	2106
VE2AX	3850	VE1HK	835
VE3AU	3096	VE3GT	294
VE5BI	3042	VE4ABH	141

CANAL ZONE.

K5AY	4707	K5AC	3080
NY2AB	3760		

MEXICO.

XE1AY	6660	XE1CM	4590

CUBA.

CM7AI 2196

PORTO RICO.

K4RJ 825

GREAT BRITAIN.

G6CJ	6970	G2WQ	2016
G2YL	6540	G2LB	1792
G5YG	6420	G5TB	1656
G6RB	4910	G5VB	1592
G5KG	4430	G2TH	1050
G5MS	4390	G5VQ	900
G6XN	3360	G6IJ	705
G2IO	3168	G5SR	564
G6BS	2940	G6GH	355
G6XL	2808	G6ZO	70

IRISH FREE STATE.

EI8B	5650	EI5F	3720

NORTH IRELAND.

GI5UR	460

GERMANY.

D4XCG	6350	D4SIG	192
D4SNP	4500	D4QET	174
D4BUF	3090	D4LIM	108
D4LTN	2646	D4DLC	108
D4YWM	1953	D4RVC	108
D4XQF	1672	D4GDF	108
D4GAD	1608	D4YBF	108
D4VRR	1520	D4YTM	108
D3CUR	1458	D4GFF	48
D4NXR	1080	D4LQM	48
D4DMC	984	D4OUT	48
D4BEC	744	D3CSC	23
D4YUM	364	D4BBF	12
D4MOL	312	D4ANF	12
D4BMH	300	D4GOF	12
D3DLC	300	D4KRJ	12
D4YFI	236	D3CPC	12
D3FZI	198		

UNITED STATES OF AMERICA.

W1JPE	6050	W5FI	6440
W1SZ	5700	W5FRD	1632
W1FH	5520	W5ARO	1449
W1TW	3800	W5KC	1113
W1AVJ	1575	W6HX	8460
W1IQF	1432	W6FZL	8300
W1FPP	141	W6CIS	4820
W1BBN	108	W6IPH	3990
W1AVB	12	W6MVK	3940
W2BHW	6520	W6GPB	2241
W2AIW	5810	W6OGA	1864
W2HHF	5110	W6IWS	1548
W2CJM	3450	W6GVM	1127
W2DZA	3440	W6LPC	1106
W2JME	2930	W6FRN	984
W2AXZ	2750	W6CFK	276
W2FAR	1827	W6LFX	12
W2GVM	1421	W7EUY	2240
W2FU	959	W8ZY	6540
W2GVX	875	W8DFH	6440
W2BJ	515	W8BTI	6180
W2EYG	24	W8JIN	6120
W3BES	7290	W8FGA	4890
W3EVT	6920	W8CJJ	3630
W3SI	6580	W8BXC	1440
W3CZO	3024	W8BTK	1421
W3AWH	2510	W8OQV	1288
W3EUJ	2250	W8LVH	735
W3CHH	1672	W8OQF	630
W3BYI	887	W8CXR	355
W3BGD	141	W8NQL	355
W3BVO	12	W8IFY	174
W4CYC	3750	W8APD	23
W5EHM	8850	W9TB	8390
W9AEH	7550	W9RPW	1561
W9PLM	4310	W9CTR	1440
W9PTC	3672	W9IYA	990
W9PST	3096	W9CFB	130
W9AMM	3080	W9MUX	70
W9BEZ	3080	W9SRT	48
W9UBY	2970	W9VVR	23
W9VKF	2088	W9INY	12

CZECHOSLOVAKIA.

OK2OP	6550	OK2HX	320
OK2LO	3640	OK3MB	70
OK2RM	742	OK1AM	23
OK2CM	356	OK3MGS	12

SWITZERLAND.

HB9AT	6020	HB9AK	4290

AUSTRIA.

OE3FL	3780	OE1ER	1712
OE7JH	2090		

HUNGARY.

HAF4H	3360	HAF1G	889
HAF8C	1280	HAF8D	756

NORWAY.

LA2Q	1687	LA5Y	108
LA4K	355	LA2U	48

SWEDEN.

SM6WL	1904	SM7UC	360

FRANCE.

F8EO	4380

DENMARK.

OZ7KG	1155

BELGIUM.

ON4NC	1980

HOLLAND.

PA0QQ	1032

ITALY.

I1KD	896

DANZIG.

YM4AA	1792

FINLAND.

OH3NP	48

LITHUANIA.

LY1J	48

ARGENTINE.

LU9BV	4437		

PERU.

OA4J	3366		

INDIA.

VU2LJ	2288	VU2EB	48

JAPAN.

J2JJ	3645		

SINGAPORE.

VS1AL	1869		

HAWAII.

K6JPD	4900	K6CGK	4810

MAURITIUS.

VQ8AA	1170	VQ8AE	276
VQ8AF	440		

SOUTH AMERICA.

ZS5U	2034	ZT6Y	1750
ZS1H	1869		

KENYA.

VQ4NSB	236		

EGYPT.

SU1WM	3510		

RHODESIA.

ZE1JV	1740		

OVERSEAS RECEIVING STATIONS.

GERMANY.

DE2415h	7230	DE1480l	4830
DE1729u	7180	DE3234f	4710
DE2881o	6410	DE3042u	4580
DE2750c	6290	DE3648n	4270
DE2981c	6120	DE1971o	4130
DE1609c	6030	DE1977b	4060
DE3559n	5511	DE3095r	3190
DE3166n	5460	DE3623m	3100
DE2449t	5450	DE3149l	2520
DE2327m	5320	DE3329u	2439
DE2409f	5310	DE3388o	2385
DE3587n	5280	DE2574l	2349
DE3197r	5190	DE2518f	2223
DE3250m	5110	DE3368u	2160
DE3282c	5060	DE3204p	1784
DE2497k	5030	DE3647m	1719
DE2680g	4880	DE3264c	1519
DE3313c	4830	DE3603i	1440
DE3642r	1280	DE1082h	498
DE2371t	1280	DE2403u	410
DE2836u	1200	DE3443t	350
DE2581i	1200	DE2102g	261
DE3214h	1092	DE2877t	190
DE3394c	944	DE2224k	171
DE2555i	810	DE2982c	171
DE3745i	768	DE3168b	110
DE3492c	756	DE3395e	108
DE3641f	744	DE3345u	92
DE2784c	610	DE3384h	48
DE3600i	500		

GREAT BRITAIN.

2CAR	7780	2AZF	5620
BRS1535	7710	2ASH	5250
BRS1173	7470	2ADY	4570
BRS1885	6720	2BIU	4300
2AZX	6540	BRS720	3590
2AWX	6530	BRS1948	4010
2AOU	6300	BRS1371	3420
2ADC	5760	2BDT	3360
2AOZ	5720		

AUSTRIA.

OE-059	6534	OE-053	1845
OE-151	4279		

FRANCE.

FR1940	3880		

U.S. AMERICA.

W2BBK	5790	W5FIT	970

CANADA.

Allan H. Pratt	2610	S. G. Clark	850

HONG KONG.

BERS3265	3040		

INDIA.

BERS311	7270		

HOLLAND.

L208	108		

TRANSMISSION SCHEDULES. MARCH, 1937.

VK2ME.

	Sydney Time.	G.M.T.
Sundays:	4 p.m.-6 p.m.	0600-0800
,,	8 p.m.-Mdt.	1000-1400
Mondays:	12.30 a.m.-2.30 a.m.	1430-1630

VK3ME.

	Melbourne Time.	G.M.T.
Nightly Monday to Saturday (inclusive).	7 p.m.-10 p.m.	0900-1200

Radio Abroad

Return of Mr. F. Johns from Interesting Tour.

Our special representative had a chat during the month with Mr. F. Johns, co-director with Mr. L. Aarons in the P. and L. Wireless Supplies Pty. Ltd., of Hardware Street, Melbourne. Mr. Johns left by the Orient liner "Ormonde" for England at the end of May last year. He arrived in England on 2nd July, and on the 15th of that month went to Berlin, Germany, arriving there a fortnight before the commencement of the Olympic Games. While in Germany

Mr. Johns on Victoria Station London, prior to his return home

Mr. Johns visited a great industrial exhibition known as Deutschland Austellang. This was held at Charlottenberg, and comprised a vast collection of buildings connected up by a maze of subterranean passages. The whole was topped by a great radio tower similar to the French Eiffel, and from its summit, reached by express elevators, the whole of Berlin could be seen as a mighty map, This great exhibition is a perpetual one, and is a masterly exposition of all the trades and professions for which Germany is world famous.

Speaking on radio matters, Mr. Johns explained that all radio and television are controlled similarly to our own systems. The present make of television set is the Telefunken, on the principle of the cathode ray. Television has been materialized by the taking of a film of the actual scene, which is developed and fixed in 90 seconds, and then televised. The whole system is carried out so expeditiously that the finish of a race can be screened almost simultaneously with the actual event. By this means the training, sprinting, high-jumping, and other events at the great games were being continuously filmed and broadcast. The actual receiving set is housed in a large-sized cabinet, on top of which is the screen, a concave piece of greenish glass. Tuning is done by the usual control, and the reception is wonderfully clear and precise.

Another feature at the Games were the giant amplifiers, with both mushroom and directional type speakers. By the use of a single mike the announcements are made and broadcast over the whole stadium—a quarter of a mile in circumference, and

Herr Hitler's arrival at the Stadium saluted by his admirers

capable of accommodating 130,000 persons. The mushroom speaker is used over the audience and the directional type over the arena.

There are many contrasts between radio generally in Germany as compared with Great Britain. Generally speaking, it is more expensive. In Great Britain is available a cheap American set which is jobbed out at £3/17/6. This set is a 5-valve Freed Eisemann, suitable for both A.C. and D.C. Apart from these sets, about £22 seems to be the standard price. Generally speaking, the sets are good,

(Continued on page 17)

28 and 56 M.C. Notes

By E. H. Conklin, W9FM

One of the most interesting phenomena to report this month is the reception of VK3YP by W9BPU, W9JGS and others at around 7.30 a.m. Central time on November 2nd. VK3YP was R7 at W9BPU, and gave the latter an R5 report. At the time, W3AIR, W4AJY, and general east coast reception was possible in Illinois, but other dx signals did not make their appearance for two hours, when ZS1H was heard.

Two reasonable explanations might be put forward—that the signals followed the long daylight path, or the shorter darkness path, along the great circle route, with conditions as favourable as on 14 m.c. At the same time, 14 m.c. signals have been found to follow the short path through the darkness, and not to be audible in Europe. This, plus the fact that Europe and Africa were not heard for several hours, suggests that the short path may have been taken by the signal. In the summer, when VK signals are heard here occasionally, they come in not during our afternoon, but as late as ten or eleven p.m. During the late summer, VK's were heard in England as late as 1500 G.m.t., or 2:00 a.m. in Melbourne and Sydney, Australia. Summer conditions on 14 m.c. also permit late evening or night work—and November approaches midsummer in Australia. VK3YP was operating just before midnight his time, at which hour here we have sometimes been able to work as close as 700 miles during our summer. Perhaps during the next year some of our dx friends will listen or transmit at odd times throughout the day and night.

November Conditions.

Crockett, of W9KG-W9ALV, says that in his opinion 28 m.c. is tapering off gradually but surely until next spring, inasmuch as European signals are not bouncing in as they did a year ago, while VK's and J's are very weak. On the other hand, W8ZY reported hearing J's on November 7 and 8 for the first time, and others have said that conditions were quite satisfactory. One thing is certain—there are plenty of dx stations deserting 14 m.c. and giving "ten" a try. Miss Nelly Corry, G2YL, late in October said that 28 m.c. is getting just like 14 m.c., and one might as well be on one as the other.

Australian Conditions.

We have just received the October issue of "Amateur Radio," published in Australia, in which VK3JJ conducts a "5 & 10" column. He says that during the recent winter months "down under," the only dx stations heard on 28 m.c. were a few W's and J's, while there were very few VK stations active to work with them. An improvement was noted early in September, with W signals increased greatly in strength, making contacts easier. Europeans also started to come through again. ZS1H was heard with weak signals. W6DIO and W6GRX were very consistent, and about the strongest W's, working plenty of VK's and ZL's. J3FK was putting in a good signal week-ends, but few other J's seemed to be active. VK3CP has worked five continents on phone, and is experimenting with beam antennas.

(By A. Pritchard, VK3CP.)

Ten metres has come into its own once more, and the band is alive with DX. The only contin. poor at present is Africa. The U.S.A. is fb from 7 a.m. till 2 p.m., with occasional w 6 or 7 later—VK2GU qso'd W6DMN as late as 4 p.m. All the morning many W phones are R9, and these stns., W1DEY, W2TP, W2GJK, W3FSD, W4FT, W4CYU, W6GBO, W6LPN, W6NCT—with gong and 2 mikes—hi!—W6ERT, W7FQK, W8DCE, W9TTB, using pair of Eimac 300T, are probably the best. There are many K6 stns., K6LCV, K6EXP, K6MVX, K6MVV—1st is outstanding. Sigs from Asia have improved, J2iN is R8 at 8.30 a.m. and 6 p.m.,

also J2CF and J2CB are consistent. On the 9th Feb., the Europeans were OK once more, and F8QW was qso hr at 10.30 p.m.; two days later G6DH was qso at 7 p.m., and F8QW hrd—G6DH qso'd ZL3DJ and 2GU also. ZL1CD was r4 hr, showing a short and a long skip. In all probability the band will be open from 7 p.m. till 10.30 p.m. for Europe, and in a few weeks time should be alive with their sigs. Our old friend HJ3AJH, HK3JB is now HK1JB, and was qso'd hr on 14th Feb., Sun. at 2 p.m. VK3XP hrd him as early as 1 p.m., but no contact. 2GU and 2ZC also qso'd him about 3 p.m. On the following day, 3YP had a long chat with him—HK1JB is building an H type beam for Aust. similar to his U.S. beam. The W stn.'s have been calling Hi7G lately, but ng. hr in Aust. The local gang have been re-vamping their gear with an eye on 5 mx dx. At 3YP Ingram has made many changes to his rx—6K7 1st iF and 6H6 2nd Det and combined noise silencer. Patto says it works like a dream! The Xmitter on 5 mx will have an extra 800 doubling from 10, and driving an Eimac 50T in the final. An H type beam is in construction also, and fed by Johnson Q net work. At 3BQ Max is making many changes. He is building a reg. doub. stage with an 801, and driving the Eimac 50T final; 3BQ is designing a Rhombic ant. for 10 and 5 mx. It should have good radiation characteristics, as one stick is 80 ft. high. The 8-tube super gives wonderful results on 5. The 6L6 class B mod is finished, and gives over 60 watts of Audio. Hr at 3CP a new 8-tube super has just been completed, and the performance on 10 is a revelation. For 5 mx an 801 as a reg doub, resonance dip on 5—250 mills to 40 mills—driving PP 801's final. An H type beam is under construction. VK2GU is getting his gear on 5 mx, and is putting in a pair of the new 808 type RCA tubes in PP. The super is fb on 5, and has received many DX stations.

QRA'S.

Cards for VK8XT may be sent to Box 103, Cloncurry.

OSIBR on 14430 is located at Karanah near Jeddah Hedjaz—Also uses 7156 KC with 1KW input.

(Continued from page 9)

the energy is unavoidably radiated from the feeders, which radiation may or may not be useful for transmission. The multiband system just described should receive preference over the Zeppelin arrangement even if the transmitter is close to one end of the antenna, because the additional loss introduced by running the transmission line horizontally to a point under the center of the antenna, then vertically to the antenna itself will be entirely negligible, and probably will be considerably less than the loss in Zeppelin feeders. The multiband antenna is readily supported from suitable stand-off insulators and can be carried around corners by making bends having a minimum radius of about 10 inches. It is entirely feasible to double back the line in trombone fashion, if desired, to obtain a length which will obviate the use of an impedance matching network.

The directional properties of the multiband antenna vary as the frequency is changed. The directivity is not ordinarily considered in amateur installations where transmission is carried on in random directions.

(Continued from Page 15.)

but selectivity is weak. There is not the choice of stations such as we enjoy, inasmuch as owing to the poor selectivity they cannot cut out as we can. The hours of broadcasting are drastically different from ours. The first session, comprising weather reports and news, goes over at 10.30 a.m., then at 10.55 the station closes down for an interval. There are no commercial stations such as we know them.

Mr. Johns obviously kept his eyes and ears open, and the result was that the interview was most informative. He returns to Melbourne enthused with fresh ideas and inspirations, which must necessarily enhance the already established value to hams of the progressive Hardware Street establishment.

GENERAL MEETING. Victorian Division.

By request of the Divisional Council Mr. O. Holst will lecture on Modulation so all those who attend can be assured of an interesting and instructive evening.

R.A.A.F. Wireless Reserve Notes

Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

Second District, N.S.W.—A. G. Henry, Clareville Avenue, Sandringham (VK2ZK).

Seventh District, Tasmania—R. Cannon, Goldie Street, Wynyard (VK7RC).

Third District, Victoria—Pilot Officer V. E. Marshall, 3 Myrtle Avenue, Kew (VK3UK).

Fourth District, Queensland—A. E. Walz, Sandgate Road, Nundah (VK4AW).

Fifth District, South Australia—F. M. Gray, 52 Ormond Grove, Toorak Gardens (VK5SU).

Sixth District, West Australia—J. Mead, 111 Gerrard St., East Victoria Park, W.A. (VK6LJ)

Federal Notes.

Once again activity has commenced in districts which have been pretty quiet since the Xmas holidays. VMD, VME and VMG are staging come-back contests, and from what we have heard from visiting members from these States there is plenty of energy saved up for such a show.

Federal watches were commenced for 1937 on Monday 15/2 on 7317 kcs., but the training was marred by the annoying presence of JAU. An idea of establishing trunk lines from Melbourne to the remotest spots of the Commonwealth has been brought forward, and it is probable that it will be put into effect in the form of several chains of stations, the idea being to have reliable net-work connecting all States for all cases of emergency.

During the month we had a visit to headquarters from 4EI, 5MY, 5JT and 7JU, all reserve members who have returned home full of ideas, a desire to get back into the thick of the traffic! We may be able to announce big things next month, so watch out for them.

3rd District Notes.

(VK3UK—3Z1)

Our objective in the re-shuffle of sections has now been reached as all personnel are fully active and poor conditions cannot upset a schedule to any major extent through the close proximity of section members to one another. We are now going ahead with the use of Phone for message handling. This will be a novel innovation as the procedure involved is different to the normal W/T method. The country sections will be the first to get going on R/T as most of them already have Phone installed. VMC is going to include the Riverina in its organisation and I am anxious to have a section going in this area as soon as possible. Any Ham up there who would like to join kindly let me know before the end of March so that a start can be made early in April.

3E2—3KI has been making a name for himself as a yachtsman up on Lake Boga as he landed a Trophy last week for the big race of the year.

3C3 is down in Melbourne for his holidays so will be off schedule for three weeks.

3F9 has returned to Glenorchy after a spell in the city and is starting the training of the new Training section immediately. He has installed new modulation equipment so that some of the explanatory matter can be got through more speedily.

3D4 has completed the rebuild of his gear after the fire that destroyed his station last month.

VMC will be co-operating with Army Signals in a bivouac they are holding over the last week-end in February. W/T will be handled to both Melbourne and country stations.

Some of the Western District members had a trip to Adelaide for the Fourth. Test.

3Z1 has not got the new masts erected at the new QRA yet but is working schedules using a temporary antenna strung along the fence. The change of address has put a few more hundred yards between the diathermy equipment at the local hospital and 3UK with beneficial results. The bedlam that seemed to have become a definite part of 3.5mc is not nearly so bad.

Divisional Notes

N.S.W. Division

The general elections of officers takes place during March, and so by the time this issue appears we will possibly have a new Council. The Institute has grown very quickly during 1936, and the committee for 1937 have quite a constant job before them.

The B.E.R.U. Contests attracted quite a solid entry here in N.S.W. The winner of the Senior Test in this state should be 2AE with approximately 820 points, a very fine total. Other scores are 2TI 575, 2EG 442, 2JX 420, 2VN 428.

N.S.W. was the centre of some activities when the 13th Annual Federal Convention was held here in Sydney. The N.S.W Division had the pleasure of welcoming, and entertaining the various interstate delegates. However more of the convention elsewhere in this issue.

W.I.A. DINNER.

The N.S.W. Division held their Annual Dinner in conjunction with the convention and it served as a welcome to the various Interstate Delegates.

The Dinner held at the Dungowan Cafe was immensely successful, some 80 experimenters were in attendance, included in the visitors were W. T. S. Crawford senior radio inspector, O. F. Mingay, secretary Institution of Radio Engineers, Capt. Cormack, Army Signal, V. Wilson, ZL1JW, R. Beatson, VK4BB, G. Thompson, VK3TH, D. Barbier, VK5MD, L. E. Goddard, Esq., and country visitors in 2XL, 2TX and 2OC from Wyong, 2ZC, 2TY, 2SO, from Newcastle, 2XT from Abermain and 2WA from Young.

The toast W.I.A. was proposed by R. H. W. Power Esq., who stated that the success of the organisation depended on its members, and their support was the main reason the W.I.A. was progressing.

The State President Mr. H. Peterson occupied the chair, and Secretary W. G. Ryan, proposed the toast to the Radio Inspector, Mr. Crawford in replying supplied some interesting information regarding recent changes in Departmental policy.

The dinner was by far the most successful by the W.I.A, here for many years.

W. T. S. CRAWFORD TROPHY CONTEST.

The following were the successful entrants from the various centres who will participate in the final to be held during the Amateur and Short Wave exhibition May, 3rd to 8th.

C. Fryer 2NP, A. J. Barnes 2CE, E. Colyer 2EL, W. R. Nash 2WW R. Priddle 2RA, R. Corthorn 2VG, D. Dunn 2EG, J. Howes 2ABS, K. Westzee 2FK, I. Meyers 2KS, H. Sherlock 2TQ, T. O'Donnell 20D, A. McKenna 2WB, S. Grimmeh 2ZW and J. Cowan VK2ZC.

The Senior Radio Inspector Mr. Crawford has kindly arranged a practice to be held in March, and all the finalists will be invited along to get into form for the final in May. The practice will be held at the Radio Inspector's Office, Haymarket.

AMATEUR AND SHORT WAVE EXHIBITION.

Arrangements are going ahead for the Amateur and Short Wave Radio Exhibition to be held from May, 3rd to May, 8th. Everyone is invited to start making gear as the prizes will be bigger and better this year. The Committee appointed to look after things is 2HP H. Peterson Chairman and Club Exhibits, 2JU, J. Moyle and 2NO, D. K. Knock. Trade Exhibits, 2TI, W. J. Ryan Working, Exhibits, 2UX, F. M. Goyen. Treasurer and 2HZ, W. M. Moore, Secretary.

Give the Exhibition some thought, and when it comes around have something to show.

NOTES FROM FEDERAL HEADQUARTERS.

13th Annual Convention.

The 13th Annual Convention of the Wireless Institute was successfully concluded on the 31st January.

Those actually participating in the business of the convention, in addition to the Federal Executive were as follows:—

VK3TH, G. Thompson, delegate from Victoria; VK4BB, R. Beatson delegate Queensland; VK5MD, D. Barbier,

delegate, South Australia; VK2TI, W. G. Ryan, delegate for N.S.W.; VK2NO, D. B. Knock, proxy for Tasmania;, VK2LZ, W. E. C. Bischoff proxy, W. Australia. and ZL1JW, V. Wilson, representing the N.Z.A.R.T.

Each item on the agenda paper received full consideration and was discussed at considerable length so that the decisions made should be of the most benefit to amateurs in Australia.

Federal Headquarters expect to be able to publish the minutes of the Convention in the next issue of Amateur Radio, so that the proceedings may be made known to all members of the Institute.

It was decided, that for the next two years. Federal Headquarters would still be located in Sydney and in view of the sesqui-centenary of Sydney in 1938, that the 1938 Convention will also be held in Sydney. The present President, Vice-President and Secretary, were re-elected for the next two years by the unanimous decision of the convention delegates.

The writer was very fortunate in being present at the Annual Convention of the New Zealand Association of Radio Transmitters held in Auck-

Federal and Victorian QSL Bureau

(VK3RJ QSL MANAGER

Ken Rankin VK3KR who as usual is well amongst any DX on tap advises that VQ8AH is situate on Salaman Island in the Chagos Archipelego about 600 miles south of Ceylon. The VQ uses 5 watts in a SE rig and is located on 14020 KC.

Ample supplies of log forms for the forthcoming BERU tests, are available at this Bureau on receipt of stamp. Intending competitors should note alterations to some of the rules.

VS8AA is situated on Bahrein Island, in the Persian Gulf.

A new QSL Bureau for China has the following address:— China Radio Club, Y. M. C. A., Hangchow, China. The QSL managers signature is a little obscure but looks like "Chow."

Cards from SV1KE are now coming to hand. His QRA is C.TAVANIOTIS, 17 Bucharest St., Athens, Greece

Log forms for the recent BERU tests are available on application to this Bureau.

GM is the new prefix allocated to Scotland.

"Tubby" Vale, VK3MK, has slipped across the border from Mildura to Wentworth; his call now being VK2AED.

Esmond Waddle, VK2UU, recently passed through VIM enroute to Sydney after holidaying at Stawell.

Dick Giddings VK3DG, invites all hams passing through Stratford, Victoria on the Princes Highway, to stop over for an hour or two.

Alf. Kerr, VR3AL recently returned from a tour of U.S.A., speaks highly of the ham hospitality shown him there. He happened to be in Chicago during the convention and met hundreds of hams, headliners and others and votes all a great bunch of chaps. He developed a great liking for "Tom Collins" as dispensed by Blackie of W9BBU.

Tom Hogan, VK3HX complains of someone using his call sign on 20MX, Cards are arriving verifying Toms' allegation.

A recent foto of VK3DW's TX is to hand. The mag will welcome a description and foto Doug.

Last months QSL notes were left out of the mag by somebodys inadvertence. (Received too late Ed.)

Cards are on hand at the Bureau for the following VK3's. Please collect promptly as files are getting clogged:— AH, AM, AP, AT, AX, BK, BL, BS, CK, CW, DI, DJ, DR, DS, DT, DZ, EH, EM, ER, ET, EW, EZ, FB, FJ, FK, FF, FN, FS, FX, GA, GB, GE, GJ, GO, GP, GX, HB, HD, HE, IL, JC, JK, JE, JZ, KA, KI, KK, KO, KT, KY, LP, LQ, LT, NA, NB, NG, NT, NU, PA, PG, QE, QK, QO, RL, RM, RT, RW, SA, SM, SO, ST, TB, TG, TO, TY, TZ, UF, UJ, UN, US, VB, VL, WL, WN, WX, XD, XG, XK, XU, XV, XW, YG, ZB, ZC, ZF, ZJ, ZQ, ZO, ZU, ZW.

Ballarat, Dinan, Howard, Hibberd, Clark, Evans, Craven, Tonkin.

land at the end of December, 1936, The agenda items discussed at this Convention were of a similar nature to those discussed in Sydney a month later.

VK—ZL CONTEST

The contest to be held in October, 1937 will be run on a slightly different basis to our past contests inasmuch as there will be two sections.

A junior section for transmitters using a maximum power input of 25 watts and a senior section using the maximum power rating allowed by the rules of the contest. In all probability the 1937 contest will be managed by the N.Z.A.R.T. Headquarters.

U.H.F. NOTES.

VK30F.

Following the comparatively poor attendance at the first meeting of the new year, a greater number attended the second meeting on the third Tuesday in Feb. Several new members were welcomed among them being 3SA, 3SG, 3NB, and 3QJ.

These new members and several more who expect to attend the next meeting will do a lot to fill the gap caused by the loss of 3KQ, 3DH and 3HZ. With the absence of these three stations operated by our three technical advisers, by our secretary and by our Council member, the section has sustained a tremendous blow, a blow that would have knocked the section out of existence but for the enthusiasm of the remaining members.

3KQ.—removed to Hobart is expected to stir up the local gang into activity, while 3DH and 3HZ will help swell the gang of hams in Shepparton, Victoria.

At the meeting it was decided to leave the election of new office bearers to the meeting next March. A full attendance is expected.

The field day to be held on Sunday, Feb. 21st was discussed and arrangements finalized to call and listen for 7AB to schedule. Portable stations are expected to be operated by 3ML, 3NB, 3OT and 3OF.

A question was asked as to whether a station newly licensed could build a modulator and use it for code, with a buzzer in place of the mike. The

section decided that he could as it would give a more readable note. It is thought that the regulations would not be broken by so doing.

3OT has a new 40 foot mast and with his new beam antenna expects to put a hefty sig into parts unknown. He and 3XM are still on the air at 1900 daily.

3VH feels the loss of 3HZ whose absence brings down his list of QSO's 3JD had an accident and does not expect to be on for a couple of weeks, while 3OF with an injured foot, and newly married is on the air again with six other 5 mx stations quite close by.

At the present time there does not appear to be very much activity on 5mx. I think that most of the "regulars" are either building M.O.P.A.'s or at least thinking seriously of it.

At our last meeting a very interesting and instructive lecture was given by 3JO on "Experiments with M.O.P.A.'s on 5mx." Just to prove that he knew what he was talking about, he brought along with him the said M.O.P.A. after the final experiment was completed.

It was mentioned at one of our meetings that there are several 5mx enthusiasts out Preston way who have been contemplating joining the UHF's for some time now, but up to the present they have not done so. We offer an invitation to these chaps, in fact anybody interested in 5mx activity to join us by coming along to our meetings. These meetings are held twice monthly, viz., the first Saturday and third Tuesday every month.

This section is anxious to get as many enthusiasts as possible, whether hams or future hams, to join us and make ours THE section where SOMETHING IS DONE.

MANLY RADIO CLUB NOTES.

(affiliated with W.I.A.)
By "Second Op."

The club have been having a round of social events of late. First the boys attended the W.I.A. Annual Dinner and then the Waverley Radio Club's 18th Annual Reunion on each occasion we had a very fb time.

The boys are now preparing for their Reunion which is to be held in the clubrooms on Saturday, 27th February, this promises to be even better than last years so it will be some night out.

The 5 meter craze has arrived in Manly and the gang are busy building receivers and mitters for some tests. We have had a small rig working and ocal reports are far.

The new rig on 40 meters is nearly completed so this will also be on the air very soon. Keith and Jim are looking forward to hooking up with their old pals again.

Three new members have joined the club since the New Year, they are very keen to go for their tickets so we wish them the best of luck.

CLUB CHATTER.

2HF is still working the dx on 20 meters fone and how he gets out; 2IP our member over at Crows Nest is on with his new rig and is working his share of the dx on 40 and 20 meters. How abt coming over to see the gang Geoff om. 2KX hrd on once or twice during the month, what is the trouble om.?

2ABK hrd from Newport on a number of occasions vry fb fone too, don't forget the reunion om.

2WQ was down from the creek last week-end looking very well, he is putting out fb fone from there when not working.

Cliff Haydon has left for New Guinea where he will be living for some time.

2NG hrd on 40 and 20 meters with his usual fb fone.

The club would like all 5 meter stations to keep a look out for 2MR down there and if anyone with a 5 meter receiver hears them, send us a report and we will Qsl 100 per cent.

The annual general meeting will take place on Tuesday, 23rd February; all members are asked to be present.

FONE NOTES.

VK21G

Condx very unreliable on all bands. Plenty W's on 40. 20 seems to be getting like the middle of last winters conditions.

2QE has his WAC cards OK. Getting the DX very often.

2OJ qrl wid movie fotos. Quotes given for quantities! Is taking the gang hr with view to exchanging with W hams. FB idea Noel om.

2EU not heard much but on fone occassionally.

2DN was making comeback but blew his modulator coupling condenser. Not so hot, Jack or was it?

we were made the guests at the Capitol Theatre, where Les 3DX showed us the works.

Sunday was spent sight-seeing and a visit to 3YB, being most enjoyable, where we saw a BLUE PRINT of the outfit there, drawn up by our old friend, George Glover, who was, unfortunately, away in Melbourne. Some of the lads got sunburnt, and some tried hard to, but they were made of the wrong kind of stuff. But the best bit of Warrnambool was kept to the very end of our visit, when Les 3DX brought his swell YL to light. Leaving Warrnambool at 3.15 p.m., contact was again made with GQ, GC, KX, KJ, and others en route, and with tea, Colac (what price the steak, OM's!). The long last stage to Geelong was completed, and everyone was sorry that the end had come, for us city folk had the train trip from which to seek solace in and ponder on one of the most enjoyable outings I myself have ever had. I can assure you that everyone is looking forward to another delightful trip with Arch and his fb turnout.

Well, here's 73's to Les and his boys, and 88's to Mrs DX, snr., and Lorna.

PHONE SECTION NOTES.

ByJ. R. KLING—VK3JB

The first meeting of this section for 1937, was held at the Institute Rooms on Tuesday, 26th January at 8 p.m.

There was a good attendance owing to the cancellation of the permits of some of the stations which operate on the B/C Band.

The meeting developed into a brain racking discussion on everybody's part to ascertain the fairest way that an arrangement could be arrived at. In the end it was decided that the last stations to come on the band would be the only ones concerned, and a chart was made of their order of merits over the last 12 months, which necessitated in the Secretary and Mr. Kerley departing for Mr. Kerley's place in a hurry to pick up last years order of merit book.

The allocations committee compiled the chart, and after it was all worked out and agreed to by the members the stations affected were told of their fate.

Our old 3LU consented to pull out and give some of the other boys a go, and 3DH has had to go up country for business reasons, therefore he stood down and other stations affected were 3XL, 3EL and 3PQ.

3TM.—has had trouble with his eyes owing to some accident I think, and sat out the meeting with much difficulty owing to the artifical light and black glasses.

3LM.—has done away with his Linear Amplifier, and has a Class "C" final now which seems much better.

3OY.—has been rebuilding and seems to be OK now.

3OV.—has been on again, up to his old standard.

3KE.—has improved much lately.

SHORT WAVE GROUP NOTES.
by O. E. Davies

At the meeting on January 27th a letter was received from Mr. Manning 3XJ resigning as President of the Group due to pressure of personnal business.

Mr. Manning's resignation was accepted with regret and we extend to him our very sincere thanks for the very excellent work he has done for the Group in the past.

Mr. Stevens was elected as President for the balance of the ensuing term and Messrs Burdekin and Ayre were elected as Vice-Presidents.

A number of members spoke on the construction of the Super-Het for 3WI.

At the meeting on February 10th a motion was passed that the representative to Council endeavour to have a power-supply constructed for use in the Institute rooms on experimental evenings and so obviate the necessity of having to "lug" in the power-pack from home.

Messrs Stevens, Ayre and Meallin brought in Short wave receivers and gave a very excellent demonstration, following which it was decided to proceed with the construction of a Super-Het on the similar lines to that demonstrated by Mr. Ayre.

Next month, if possible, an effort will be made to publish a circuit and description of the intended receiver.

MALLEE AND NORTHERN DISTRICT.
(3ZK—3HX)

The unsettled weather conditions which were experienced during most of the past month made conditions on all bands eratic 80mx being usually nothing but static, but from now on that band should improve. 40mx has also suffered from static, but in spite of that the band has never been deserted. 20mx has been very patchy and even there "ole man static" made himself heard. Concentrating on that band during the month, dozens of countries have been heard, both on fone and CW the most notable fone signs heard have been HI7G, W6ITH, W9RUK, W4DSY, PK1MX, KA1BH.

3EP Ted spends most of his time on 80 and 40mx with an occasional trip to 20 to work Dx. Is at present trying out a single wire matched impedance feed to the antenna, and judging by his sig here on 40mx, it seems to be working FB.

3TL Has long since returned from his holidays, and is usually on sked sunday mornings. Treb is much taken with the new 913 midget type cathode ray tube and reckons that he'll have an oscilloscope soon.

3OR has been heard on CW with new rig. We understand that Murray will be giving radio the go-by soon, well you see Murray has done found himself a YL and got engaged. Congrats Murray.

3HR.—has made a comeback and was heard on 40mx.

3WN.—has also been heard on that band.

3BG.—Roth has rebuilt his rig and is now putting out a very nice sig. look out for fone at the end of March.

3TS.—is on the job with a 6L6 tritet and has worked a yank on 40mx.

3WE.—is worth a mention because one night he was heard working a PK on 40mx a hasty search of the band was made but no PK. It was afterwards ascertained that Bill was on 20mx. FB Bill.

3IH.—has had the misfortune to strike a 6A6 which is not so hot, nevertheless Fenton is helping to keep Charlton on the map.

Our congratulations go out this month to one of 3ZK's 2nd op. Martin who has passed A.O.P.C.

3ZK.—living up to his motto "We'll try any thing once" had an argument with the ground. It appears that Jim in a hurry to get home for a sked (yes 6YL was to be in attendance) had the misfortune to break the front fork of his bike and he spent the night in hospital. Jim is OK again now except that he doesn't look so handsome.

WESTERN DISTRICT NOTES.
(By 3HG.)

Most of the district's activity seems to be on 14 m.c., no doubt due to QRW on 3.5 m.c. and QRM on 7 m.c.

3KX's phone makes a big noise on 14 m.c., and 3GQ is also often on this band. The latter heard on 7 m.c., with YL operator, who is studying for her ticket. Another A.O.P.C. aspirant recently sat in Camperdown, but haven't heard the result yet.

3KK, of Coleraine, has announced his engagement! 3OR has gone and done likewise.

3HG and 3OW visited Adelaide recently, and met some of the VK5 gang, also attended W.I.A. meeting

and VK5RI Club night. Called on the Narracoorte boys on the way home.

3XG has changed to 7 m.c. phone, which is quite good.

3XU still FB T9 on 7 m.c.

3BG has at last installed crystal control, using a patent single tube tritet circuit, which sounds very good.

There are several new stations in this district, but none have yet been heard. Evidently they are waiting for the six months' phone restriction to pass.

EAST GIPPSLAND NOTES.

On Sunday, the 14th February, the following of the gang down in Gippsland met at 3DG's, and discussed their doings, etc.:—VK3GO, 3BR, and 3DG himself. VK3LY unfortunately had to work, as they were installing a new ant. at 3TR, much to the disgust of 3DG, who receives them R max all over the higher frequencies.

Among the gathering were Keith Scott and Jack Mills, of Maffra, who were successful at the recent examination for their AOPC, and hope to be on the air at an early date, when they receive their calls.

Believe the following line-ups are being given thought, too:—6P6, Ocs. es 6P6, PA, for Keith, es Jack, 6L6, 6L6 es 802 pa.

VK3GO has struck all trouble about the place with his 59 ec osc es 45 pa, but is shifting to a new qra shortly, es intends starting and rebuilding everything, including ant., which is going to be a half-wave Zepp in place of full wave.

VK3BR has been inoperative for a long time through power troubles, but hopes to have AC on now very shortly, es then look out, but in meantime may stage a comeback on qro with a MOPA, using Jenny motor and superhet.

VK3DG, with 15 watts input to 45 TNT, doing a little dx on 20 mx, few W's CM, VU, I. Pks; hopes to rebuild, and going to try a 6P6 in final stage, wid Xtal using 53 Osc and Doubler.

VK3LY has at last got a Xtal to perk, and can be heard on 40 mx wid plenty of punch es vy nice fb note; also rebuilt ant., now using 3 half waves in phase, rig also migrated from pair of tens in parallel to Xtal wid a 6L6 in final.

South Australian Division

By VK5KL.

As predicted in last month's notes, the ten-metre band opened up for DX communication the first week in February. Sunday, February 7th, DX heard was VE, W, K7, K6, J, LU9, ZL, and occasional VK2's. Yanks can be heard until 2 p.m., and in evenings G6DH is most consistent European station. The Technical Development Section in this State have been occupied in energetic work, and in the future the service of frequency checking, which was made use of by most VK stations on 40 mx last year, will be more accurate, and so more beneficial than before.

Two social cricket matches have been arranged for members, and are as follow:—On March 7th, at Hawthorn, Dean versus Waymouth Motors; and on April 4th, with the Railways Institute Club, VK5RI, at the Gorge. During the fourth test several interstate hams were in Adelaide, and attended the meetings, VK4EI, 3HG, 3OW, 2VQ, 2ZJ.

Recent lectures which have been given were by Mr. W. Parsons (5PS), "Progress of Motion Picture Projection," and by Mr. M. F. Hider, "Refrigeration and its Applications."

Members are reminded that the elections take place in April, and are asked to try and find a man who will stand for Council and do the right thing for benefiting the Institute.

Tasmanian Division

(VK7JB.)

This division held a very successful field day on the 31st January, at Blackman's Bay, a popular resort about 10 miles from Hobart. Instead of the usual hidden transmitter and D.F. receivers, the day was spent in a cricket match between teams selected by 7CW and 7JB, the former team winning by 18 runs. Considering the bumpy nature of the pitch, and 7CW's bowling, some good scores were made, the dark horse of the day being 7YL, who made 18 runs in fine style. A wrestling match to decide the championship of the

Institute, between 7JB and Sec. "Chum" Moorhouse resulted in a deadlock when the combatants got into a half-nelson-scissors, and could not be separated. It is hoped to hold another such outing in the near future, so brush up your cricket, boys!

The circular issued by the P.M.G.'s Department re high-power permit cancellations for those holding 200 mx permits has caused some surprise and disappointment, particularly in view of the forthcoming B.E.R.U. and A.R.R.L. contests when the 200 mx hams will have to compete with 25 watts against 100 or so of the others. To date no satisfactory explanation as to the reason of this ultimatum has been received.

MEMBERS' NOTES.

7YL.—Had hopes of winning Junior B.E.R.U. contest, but an illness has curtailed activities for some weeks to come. We wish you a speedy recovery, Joy.

7JH.—Resumed Technical School duties, but still finds time to work an occasional W es K6 on 20 mx.

7KV.—Only heard on 10 mx nowadays. Taking advantage of the B.E.R.U. contest to work a G for W.A.C. Ten.

7CT.—Had an argument with an axe, and came off a bad second with a badly gashed foot, which necessitated the insertion of four stitches in said foot.

7DW, 7HM ("Sec." Moorhouse), and 7JD hope to bust the ether very soon. J.D. (John Dodds, of 7HO) will be using crystal control on 80, 40, 20 and 10.

7CW.—Probably inspired by 7PA's example, will soon be joining the ranks of the Benedicts. Best luck and sympathies, Cros, om.

7JB.—Pruning down the transmitter to 25 watts.

7AB.—Interested in B.E.R.U. contest. Heard a rumour that you are contemplating marriage, Doug. Seems to be getting a habit among the VK7 boys lately.

7KR.—Has recently purchased a TC 04/10.

7AM.—Got 100 m.p.h. out of his mo.-bike in a speed trial, and now going back to radio for excitement.

7BQ.—Also affected by 25-watt limit for B/C. permit.

7CL.—On 20 mx fone and CW, and working quite a few new countries.

3WX.—Stationed in Launceston again, and hopes to take out a VK7 call, much to the YF's disgust.

7HY.—Trying hard to work a W. Say om you don't hear key clicks on a gramo. record!

7CP.—Installing high-power linear stage in 7BU.

7LC.—A new ham (QRA, L. Chappell, Ross). Very active, judging by QSL's here.

7BM.—An old-timer; hopes to stage a comeback on 5 metres.

HEARD IN POLAND.

The Wilno Short-Wave Club reports the VK stations heard in Poland, from September, 27—October, 25

By x SP 1LM—Recvr. 1-v-1. Reports are RST. On 14mc band.

VK4HR 338, VK4AP 446, VK4YL 559, VK5HW 559, VK5BY 539, VK5FM 559, VK5WR 559, VK2HV 559, VK2TG 338, VK2AE 448, VK2OJ 449 VK3MR 349.

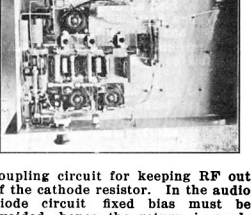
VICTORIAN DIVISION A.O.P.C. CLASS.

The class Manager Mr. G. Thompson is anxious to contact all likely students for the next class.

This new winter class is to be commenced almost immediately so dont lose any time about contacting him for enrolment. Fees as before 5 gns. Special terms may be arranged if required.

(Continued from page 5)

plate through the diode plate coupling condenser (100 mmfd). The audio diode load resistor consists of R15 and R16 in series. The load condenser is split into two sections, C15 and C16, to aid in filtering R.F. from the lead, which goes through the audio coupling condenser, C14 to R9, the audio volume control thence to the grid of the penthode section. C16 and R17 comprise a de-



coupling circuit for keeping RF out of the cathode resistor. In the audio diode circuit fixed bias must be avoided, hence the return is made to the cathode direct. In some cases it may be necessary to connect a condenser of about .00025 mfd from the penthode plate to earth in order to stabilise the tube.

This receiver, by the way, performs well on the lower frequencies, and could be made into an all band receiver if the IF's are sharpened up. The best suggestion to date is that a 2000 Kc/s crystal gate be plugged in the first I.F. transformer.

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837	4 5 0	12.6	0.7	500	200
804	7 5 0	7.5	3.0	1,250	300
803	18 0 0	10	5.0	2,000	600

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